CLAIMS:

1. An electromagnetic solenoid comprising a cylindrical body yoke, a front yoke arranged on one end side of said body yoke, a fixed yoke that is formed integrally with said front yoke and arranged in said body yoke, a back yoke arranged on the other end side of said body yoke, an annular center yoke arranged at the central portion of said body yoke in the axial direction thereof, a first annular electromagnetic coil that is arranged along the inner peripheral surface of said body yoke between said center yoke and said front yoke to surround said fixed yoke, a second annular electromagnetic coil arranged along the inner peripheral surface of said body yoke between said center yoke and said back yoke, an operation rod arranged being inserted through said front yoke and said fixed yoke so as to move in the axial direction, a first moving yoke mounted on an end of said operation rod on the side of said back yoke, a second moving yoke arranged on said operation rod so as to slide between said first moving yoke and said fixed yoke, and a limiting means for limiting said second moving yoke from moving toward the back yoke at an intermediate position in a range in which said first moving yoke moves.

2. An electromagnetic solenoid according to claim 1, wherein a magnetism shut-off ring made of a non-magnetic material is provided in the central portion of said body yoke in the axial direction thereof.

3. An electromagnetic solenoid according to claim 1, wherein said limiting means comprises a stopper portion which protrudes inward in the radial direction on the inner peripheral surface of said center yoke.

4. A shift actuator of a transmission equipped with a first

electromagnetic solenoid and a second electromagnetic solenoid for actuating, in the directions opposite to each other, an operation member coupled to a shift lever for operating a gear-changing mechanism of the transmission, wherein said first electromagnetic solenoid and said second electromagnetic solenoid comprise, respectively, a cylindrical body yoke, a front yoke arranged on one end side of said body yoke, a fixed yoke that is formed integrally with said front yoke and arranged in said body yoke, a back yoke arranged on the other end side of said body yoke, an annular center yoke arranged at the central portion of said body yoke in the axial direction thereof, a first annular electromagnetic coil that is arranged along the inner peripheral surface of said body yoke between said center yoke and said front yoke so as to surround said fixed yoke, a second annular electromagnetic coil arranged along the inner peripheral surface of said body yoke between said center yoke and said back yoke, an operation rod that is arranged being inserted through said front yoke and said fixed yoke so as to move in the axial direction and is coupled to said operation member, a first moving yoke mounted on an end of said operation rod on the side of said back yoke, a second moving yoke arranged on said operation rod so as to slide between said first moving yoke and said fixed yoke, and limiting means for limiting said second moving yoke from moving toward said back yoke at an intermediate position in a range in which said first moving yoke moves.